PATENT
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What is claimed is:

1. A method for processing a substrate, comprising exposing a patterned substrate surface to a plasma comprising argon, helium and hydrogen in a processing chamber.

2. The method of claim 1, wherein the plasma comprises less than about 75% by volume of argon.

3. The method of claim 2, wherein hydrogen is provided to the processing chamber in a mixture of about 95% helium by volume and about 5% hydrogen by volume.

4. The method of claim 1, wherein etch rate increases when helium content is increased.

5. The method of claim 1, wherein the substrate surface comprises silicon oxide or silicon nitride.

6. The method of claim 1, wherein the plasma is capacitively and inductively powered.

7. The method of claim 1, wherein the processing chamber is maintained at a pressure from about 1 mTorr to about 200 mTorr.

8. A method for processing a substrate, comprising:

(a) exposing a patterned substrate surface to a plasma comprising argon, helium and hydrogen in a reaction chamber; and

(b) increasing the helium content of the plasma to increase etching of the patterned substrate surface.

9. The method of claim 8, wherein the plasma comprises less than about 75% by volume of argon.

10. The method of claim 9, wherein hydrogen is provided to the reaction chamber in a mixture of about 95% helium by volume and about 5% hydrogen by volume.

11. The method of claim 8, wherein the substrate surface comprises silicon oxide or silicon nitride.

12. The method of claim 8, wherein the plasma is capacitively and inductively powered.

13. The method of claim 1 wherein the reaction chamber is maintained at a pressure from about 1 mTorr to about 200 mTorr.

14. A method for processing a substrate, comprising:

(a) exposing a patterned substrate surface to a plasma comprising argon, helium and hydrogen in a reaction chamber, wherein the plasma is capacitively and inductively powered; and

(b) increasing the helium content of the plasma to increase cleaning of the patterned substrate surface, wherein the plasma comprises less than about 75% by volume of argon.

15. The method of claim 14, wherein hydrogen is provided to the reaction chamber in a mixture of about 95% helium by volume and about 5% hydrogen by volume.

16. The method of claim 15, wherein the substrate surface comprises silicon oxide or silicon nitride.

17. The method of claim 14, wherein the reaction chamber is maintained at a pressure from about 1 mTorr to about 200 mTorr.